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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,911

12/30/2005

Hiroshi Ueno

AI 397NP

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08/03/2007

RABIN & Berdo, PC

1101 14TH STREET, NW

SUITE 500

WASHINGTON, DC 20005

EXAMINER

NGUYEN, HONG VINH T

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/562,911

Applicant(s)

UENO, HIROSHI

Examiner

Hong-Vinh Nguyen

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/30/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Drawings***

Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayasaka (US 5,892,311 hereinafter "'311").

Regarding claim 1:

The preamble recites an automotive steering device and as such, it will not be given any patentable weight. The limitation for an electric motor, which generates a steering assist force, is considered an intended use limitation and therefore will not be given any patentable weight. There are no structural recitations of a steering assist device in the claims. '311 discloses an induction generator, not a motor, however it is well known in the art that permanent magnet electric machines can be used as either a generator or motor.

'311 discloses a generator wherein the electric motor comprises a rotation shaft, a stator surrounding the rotation shaft, and first and second rotors rotatable together with the rotation shaft,

wherein the stator includes a plurality of cores arranged circularly about the rotation shaft and elongated parallel to an axis of the rotation shaft, and coils respectively wound around the cores,

wherein an electric current is caused to flow through the coils around the respective cores, whereby the cores are each formed with first and second magnetic poles disposed opposite to each other longitudinally thereof and having opposite polarities,

wherein the first rotor has a third magnetic pole having a polarity opposite to the polarity of the first magnetic pole, wherein the second rotor has a fourth magnetic pole having a polarity opposite to the polarity of the second magnetic pole, (see Figs. 2A-B)

wherein the third and fourth magnetic poles are respectively brought into opposed relation to the first and second magnetic poles of the cores in a same phase during rotation of the rotation shaft, whereby magnetic fluxes interlink with the coils around the cores in predetermined directions longitudinally of the cores (see Fig. 6B). Fig. 6B does show the magnetic path between the rotor and stator cores, and that the magnetic fluxes interlink with the coils around the cores in predetermined directions longitudinally of the cores.

Regarding claim 2:

'311 discloses a structure as in claim 1, wherein the first rotor includes at least one first permanent magnet having the third magnetic pole, and the first permanent magnet further has a fifth magnetic pole having a polarity opposite to the polarity of the third magnetic pole,

wherein the second rotor includes at least one second permanent magnet having the fourth magnetic pole, and the second permanent magnet further has a sixth magnetic pole having a polarity opposite to the polarity of the fourth magnetic pole (see Figs. 3A-B, 4A-B).

Regarding claim 3:

'311 discloses a structure as in claim 1, wherein the third and fourth magnetic poles respectively include magnetic poles to be brought into radially opposed relation to the first and second magnetic poles with respect to the rotation shaft (see Figs. 2A-B).

Regarding claim 4:

'311 discloses a structure as in claim 1, wherein the third and fifth magnetic poles of the first permanent magnet include a pair of magnetic poles disposed opposite to each other radially of the rotation shaft,

wherein the fourth and sixth magnetic poles of the second permanent magnet include a pair of magnetic poles disposed opposite to each other radially of the rotation shaft (see Fig. 3A-B, 4A-B).

Regarding claim 5:

'311 discloses a structure as in claim 1, wherein the third and fourth magnetic poles respectively include magnetic poles to be brought into opposed relation to the first and second magnetic poles respectively include magnetic poles to be brought into opposed relation to the first and second magnetic poles longitudinally of the cores (see Fig. 6B).

Regarding claim 6

'311 discloses a structure as in claim 1, wherein the third and fifth magnetic poles of the first permanent magnet include a pair of magnetic poles disposed opposite to each other in a direction parallel to the axis of the rotation shaft,

wherein the forth and sixth magnetic poles of the second permanent magnet include a pair of magnetic poles disposed opposite to each other in the direction parallel to the axis of the rotation shaft (see Fig. 2A-B, 3A-B, 4A-B)

Regarding claim 7:

'311 discloses a structure as in claim 1, wherein a plurality of first permanent magnets are provided which are disposed circumferentially equidistantly about the rotation shaft,

wherein a plurality of second permanent magnets are provided which are disposed circumferentially equidistantly about the rotation shaft (see Fig. 2A-B).

Regarding claim 8:

'311 discloses a structure as in claim 1, wherein a number of the third magnetic poles and a number of the forth magnetic poles are equal to each other (see Fig. 3A-B, 4A-B).

Regarding claim 9:

This claim contains a typo with the word "froth." The examiner will assume "forth" is meant to further treat the claim on the merit.

'311 discloses a structure as in claim 1, wherein a number of the cores is greater than the number of the third or fourth magnetic poles (see Fig. 2B).

Regarding claim 10:

'311 discloses a structure as in claim 1, wherein a number of the cores is twice the number of the third or fourth magnetic poles (see Fig. 2B, Col. 4 lines 31-41).

Regarding claim 11:

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'311 discloses an induction generator, not a motor, however it is well known in the art that permanent magnet electric machines can be used as either a generator or motor by either generating current or supplying current, respectively.

'311 discloses a structure as in claim 1, wherein the windings 7c and 9c are provided clockwise around the stator cores, and the windings 8c and 10c are provided counterclockwise (see Col. 4 lines 43-48). With this structure, electric current can be provided alternately in opposite directions, and the directions of the electric current supplied to each two circumferentially adjacent cores around the rotation shaft are opposite to each other,

whereby attractive forces are generated between the first and second magnetic poles of one of the two adjacent cores and the corresponding third and fourth magnetic poles, and repulsive forces are generated between the first and second magnetic poles of the other core and the corresponding third and fourth magnetic poles (see Fig. 6B).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayasaka (US 6,166,473 hereinafter "473").

Regarding claim 1:



The preamble recites an automotive steering device and as such, it will not be given any patentable weight. The limitation for an electric motor which *generates a steering assist force* is considered an intended use limitation and therefore will not be given any patentable weight. There are no structural recitations of a steering assist device in the claims.

'473 discloses a rotary electric apparatus that functions as either a generator or a motor,

wherein the electric motor comprises a rotation shaft, a stator surround the rotation shaft, and first and second rotors rotatable together with the rotation shaft,

wherein the stator includes a plurality of cores arranged circularly about the rotation shaft and elongated parallel to an axis of the rotation shaft, and coils respectively wound around the cores,

wherein an electric current is caused to flow through the coils around the respective cores, whereby the cores are each formed with first and second magnetic poles disposed opposite to each other longitudinally thereof and having opposite polarities,

wherein the first rotor has a third magnetic pole having a polarity opposite to the polarity of the first magnetic pole, wherein the second rotor has a fourth magnetic pole having a polarity opposite to the polarity of the second magnetic pole,

wherein the third and fourth magnetic poles are respectively brought into opposed relation to the first and second magnetic poles of the cores in a same phase during rotation of the rotation shaft, whereby magnetic fluxes interlink with the coils

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around the cores in predetermined directions longitudinally of the cores (see Fig. 3,6 and Col. 4 lines 37-48).

Regarding claim 2:

'473 discloses a rotary electric apparatus as in claim 1, wherein the first rotor includes at least one first permanent magnet having the third magnetic pole, and the first permanent magnet further has a fifth magnetic pole having a polarity opposite to the polarity of the third magnetic pole (see Fig. 4). The third magnetic pole includes the outer flat surface of the rotor – North Pole - and the fifth magnetic pole includes the inner surface of the rotor – South Pole.

Regarding claim 3:

'473 discloses a rotary electric apparatus as in claim 1, wherein the third and fourth magnetic poles respectively include magnetic poles to the brought into radially opposed relation to the first and second magnetic poles with respect to the rotation shaft (see Fig. 2).

Regarding claim 4:

'473 discloses a rotary electric apparatus as in claim 1, wherein the third and fifth magnetic poles of the first permanent magnet include a pair of magnetic poles disposed opposite to each other radially of the rotation shaft,

wherein the fourth and sixth magnetic poles of the second permanent magnet include a pair of magnetic poles disposed opposite to each other radially of the rotation shaft (see Fig. 2, 3).

Regarding claim 5:

'473 discloses a rotary electric apparatus as in claim 1, wherein the third and fourth magnetic poles respectively include magnetic poles to be brought into opposed relation to the first and second magnetic poles respectively include magnetic poles to be brought into opposed relation to the first and second magnetic poles longitudinally of the cores (Fig. 3 and Col. 4 lines 37-48)

Regarding claim 6:

'473 discloses a rotary electric apparatus as in claim 1, wherein the third and fifth magnetic poles of the first permanent magnet include a pair of magnetic poles disposed opposite to each other in a direction parallel to the axis of the rotation shaft,

wherein the forth and sixth magnetic poles of the second permanent magnet include a pair of magnetic poles disposed opposite to each other in the direction parallel to the axis of the rotation shaft (Fig. 3, 4).

Regarding claim 7:

'473 discloses a rotary electric apparatus as in claim 1, wherein a plurality of first permanent magnets are provided which are disposed circumferentially equidistantly about the rotation shaft,

wherein a plurality of second permanent magnets are provided which are disposed circumferentially equidistantly about the rotation shaft (see Fig. 4, 3).

Regarding claim 8:

'473 discloses a rotary electric apparatus as in claim 1, wherein a number of the third magnetic poles and a number of the forth magnetic poles are equal to each other (see Fig. 3, 4 and Col. 3 lines 62-65 and Col. 3 lines 11-16).

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Regarding claim 9:

This claim contains a typo with the word "froth". The examiner will assume "forth" is meant to further treat the claim on the merit.

'473 discloses a structure as in claim 1, wherein a number of the cores is greater than the number of the third or fourth magnetic poles (see. Fig. 2,4,6).

Regarding claim 10:

'473 discloses a structure as in claim 1, wherein a number of the cores is twice the number of the third or fourth magnetic poles (see Figs. 2,4,6 and Col. 3 lines 62-65 and Col. 4 lines 11-16 and 21-23).

Regarding claim 11:

'473 discloses a structure as in claim 1, wherein the diagonal position coils are wound one direction and the other coils are wound in the opposite direction (see Col. 4 lines 49-53). With this structure, electric current can be provided alternately in opposite directions, and the directions of the electric current supplied to each two circumferentially adjacent cores around the rotation shaft are opposite to each other,

whereby attractive forces are generated between the first and second magnetic poles of one of the two adjacent cores and the corresponding third and fourth magnetic poles, and repulsive forces are generated between the first and second magnetic poles of the other core and the corresponding third and fourth magnetic poles (see Col. 5 lines 14-26).

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### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong-Vinh Nguyen whose telephone number is (571) 270 1743. The examiner can normally be reached on Monday through Thursday 8 am to 6 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HVN  
7/31/2007

  
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